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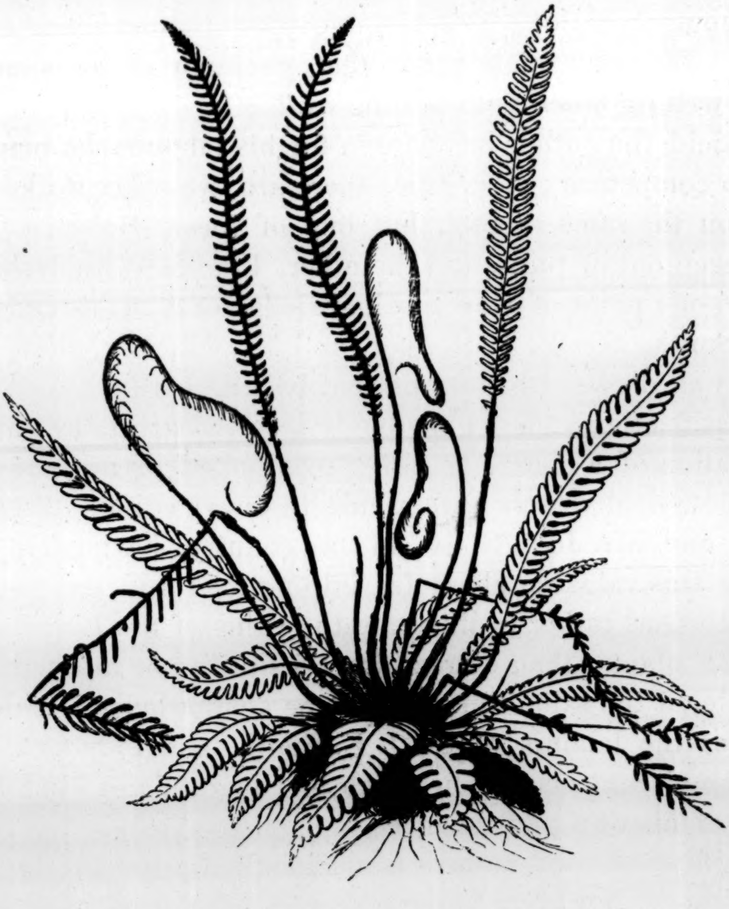
Art. CCXIII.—*Analytical Notice, with Illustrations, of a 'History of British Ferns and allied Genera.'* By Edward Newman, F.L.S., Z.S., &c. London: Van Voorst, 1844.



Lomaria spicant.

We scarcely know a paragraph more replete with truth than that selected by the author for his motto. "Monographers, come from whence they may, have, I think, fair pretence to challenge some regard and approbation from the lovers of Natural History; for as no man can alone investigate all the works of Nature, these partial writers may, each in their department, be more accurate in their discoveries, and freer from errors than more general writers, and so by degrees may pave the way to an universal correct Natural History."* If this be true (and who shall gainsay it?) how true also is the converse of the proposition! — General writers, come from whence they may, have slight pretence to challenge regard and approbation from the lovers of Natural History: for as no man can alone investigate all the works of Nature, these general writers must be less accurate in their discoveries, and less free from errors than more partial writers, and so by degrees they introduce manifold errors into Natural History. Without making any attempt to criticise the works of our masters in the science, and confining our attention entirely to living authors, we may, without hesitation, give the unqualified precedence to monographers. We may safely assert that we know of no botanist who combines writing *much* with writing *well*.

In the field the author has chosen for his labours, he may be said to have no competitor; it is true, there are two other works treating precisely on the same subject, but one of these, Bolton's 'Filices,' has long been out of print, and the other, Francis' 'Analysis,' rather brings into one point of view our knowledge of ferns as derived from Sir J. E. Smith, Sir W. J. Hooker, and Mr. Mackay, than supplies us with a well digested history of that beautiful tribe.

The classification of ferns has lately received great assistance from the application of a character either overlooked or neglected by all the older botanical writers; we allude to the venation. Presl on the continent, and Mr. John Smith in this country, have taken the lead in bringing this valuable character into notice; and the result of its application seems rather to illustrate the value of the Linnean grouping of these plants, than detract from its utility or interfere with its detail, while, at the same time, it must be acknowledged, it decidedly discomposes the labours of Sir J. E. Smith, and induces a smile at the very complacent manner in which he congratulates himself on the perfection of his own performances.†

In classification, our author is decidedly a pupil of the modern school, without, however, being a servile follower of its able founders. He works with their characters, but does not always attain the same results. Consequently, his nomenclature is *toto cœlo* at variance with that so long in general use. On the first promulgation of his views on this subject, in 1839-40, there was a general denunciation of changes so radical and complete; but Mr. John Smith's paper on the same subject, read almost immediately afterwards at the Linnean Society, and perhaps the most profound and useful treatise ever presented to that body, obtained a hearing and a respect which was denied to Mr. Newman as an unknown botanist. We believe this is always the case; *great* changes, to ensure prompt attention and respect must be introduced by *great* men, by men of established reputation; or they fail of the desired object. Such was very decidedly the case as regards our author; and botanists, who one month proclaimed the absurdity of Mr. Newman's innovations, were seen the following month bending the supple knee to the same innovations, when sanctioned by the European reputation of Mr. Smith. Soon after this confirmation of Mr. Newman's views, Dr. Balfour and Mr. Babington, the authors of the Edinburgh Catalogue, adopted the alterations, and were the means of disseminating them from John o' Groat's to the Land's End. But, in the midst of its successful career, the new nomenclature met a most decided check in the publication of the fifth edition of Sir W. Hooker's 'British Flora,' wherein we were astonished to find the changes introduced by Mr. Newman, not only fathered upon the authors of the Edinburgh Catalogue, but the new names given as synonymes, and the old nomenclature restored in all its glory. The 'British Flora' was almost immediately followed by Mr. Babington's Manual, and very recently by the list of the Botanical Society of London, principally from the pen of that accomplished botanist, Mr. Watson; and both these authors adopt Mr. Newman's nomenclature. It would be idle for us to deny the weight and authority of a name like Sir W. Hooker's, and we do not hesitate to express our belief that it will have great influence in retarding the adoption of the altered nomenclature of ferns; but only of retarding it: the time has now arrived when each successive author enquires for himself, when he takes little or nothing for granted, and without pinning his faith on the sleeve of an individual writer, ventures to consult the works of Ray,* Schkuhr, Kunze, Swartz, Weiss, Presl, Schott, Dietrich, Decandolle, Roth, Wahlenberg, Weber, Hoffmann, &c., and to form a judgment of his own. This being the case, we are willing to abide the issue; and confidently hope eventually to see that nomenclature adopted which possesses the greatest intrinsic merit, combined with the claim of priority, without reference to the reputation of one author or the obscurity of another.

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* Gilbert White.

† See the introductory observations to the Cryptogamia Filices in the 4th volume of the 'English Flora.'

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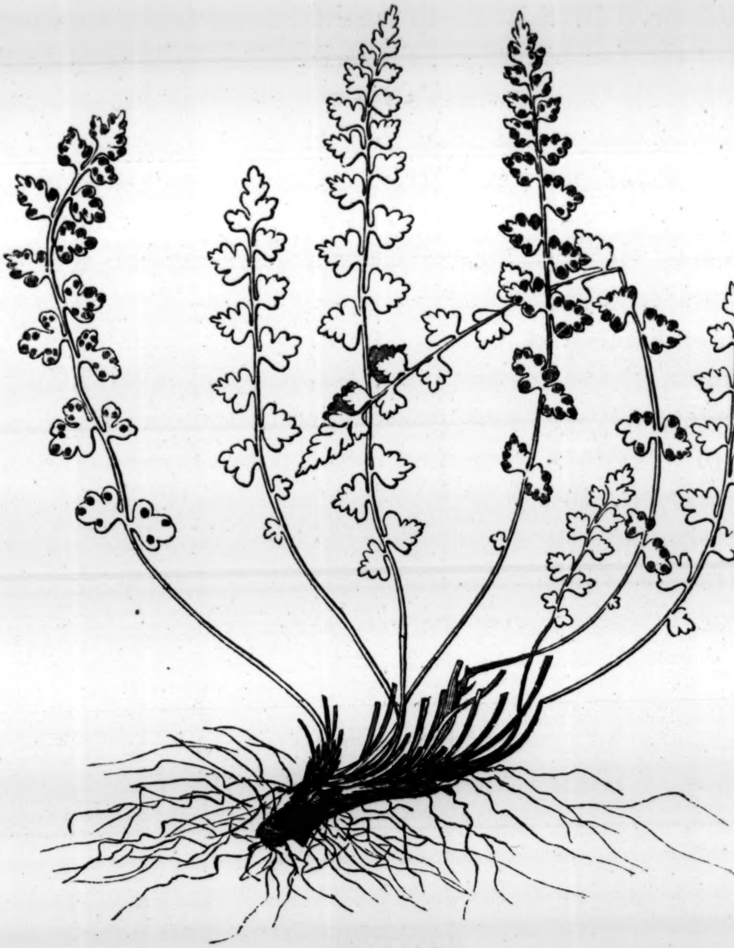
* No man can form a just estimate of what is due to each classification of ferns, without going back even to Ray, whose 'Methodus Plantarum' contains the draft of the system, which, under Sir J. E. Smith, Swartz and Willdenow, subsequently became so famous.

In the synopsis with which the author commences his 'History,' there is evinced a total disregard of established notions; but in the History itself, this disregard is kept more under control, and large concessions are made to what the author evidently regards as received errors. Thus, the artificial genus Polypodium is preserved in the History, but the species are separated in the synopsis: the names of Polypodium calcareum and Hymenophyllum Wilsoni are given in the History, the prior and original names of Polypodium robertianum (*Hoffmann*) and Hymenophyllum unilaterale (*Willdenow*) in the synopsis. These and numerous other instances of attempted conciliation, of noticing without reforming the manifold errors which have so long been perpetuated through the most gross carelessness and inattention, were, in our opinion, uncalled for; and we think the author would have done better to revert at once to what he considered the correct nomenclature, even though every name employed by Sir J. E. Smith had been thereby obliterated from the catalogue of British ferns. The number of errors into which Sir J. E. Smith has fallen, exceeds all belief; and some of them appear inexplicable. Knowing how intimately Sir James was acquainted with the works of Roth and Hoffmann, seeing how constantly he quotes them throughout his descriptions of the ferns, it seems scarcely credible that in two instances at least he should have renamed ferns which they had carefully described, and have given them to the world as altogether new; and that in another instance he should have described one fern under three names, dwelling on differences which had no existence. The axiom, *de mortuis nil nisi bonum*, was doubtless conceived in love, and is worthy of general acceptation; but we deny that the grave should be made thus to consecrate error, thereby conferring an injury both on the dead and the living, robbing those who are departed of their just reputation, and diverting the living student from the paths of truth.

The arrangement adopted in Mr. Newman's 'History,' is not characterised by much novelty. The divisions are these.

1. *Equisetaceæ.*
2. *Adiantaceæ*, including Adiantum, Lomaria and Pteris.
3. *Polypodiaceæ*, including Allosorus, Polypodium and Woodsia.
4. *Aspidiaceæ*, including Cystopteris, Polystichum and Lastræa.
5. *Aspleniaceæ*, including Athyrium, Asplenium, Scolopendrium and Ceterach.
6. *Hymenophyllaceæ*, including Trichomanes and Hymenophyllum.

7. *Osmundaceæ*, Osmunda only.
8. *Ophioglossaceæ*, including Botrychium and Ophioglossum.
9. *Lycopodiaceæ*, including Lycopodium and Isoetes.
10. *Marsiliaceæ*, Pilularia only.



Woodsia alpina

It were almost an insult to the understandings of our fellow-labourers in the field of botanical science, to consider it necessary to point out to them that these divisions, by whatever name they may be called, are of very unequal value. Thus, while the line between the Polypodiaceæ and Aspidiaceæ is almost incapable of definition, that between Equisetaceæ and all the rest is so manifest, as to have led some modern botanists to disconnect them from the cryptogamous and place them among phænogamous plants. These discrepancies might furnish the hypercritic with a fruitful theme, and the introductory synopsis might even be employed as affording the weapons of attack.

1. *Equisetaceæ.* These have been so recently described in the pages of 'The Phytologist,' that there has been little time or opportunity for alteration or addition; but we may notice that a further guide to the detection of species is afforded in the careful figures of transverse sections of the stem of each.

2. *Adiantaceæ.* In this group we invite attention to the detailed description of the fructification of Pteris. It seems rather extraordinary that although Mr. Newman's views upon this subject have been four years before the public, that they have been allowed to pass unnoticed by Sir W. Hooker and Mr. Babington, both of whom, in their subsequently published works, revert to the old, and, as we consider, totally erroneous description. This question remains an open one; but we are unable to resist the conviction, that Mr. Newman's solution, backed as we find it by the careful observations of Mr. Wilson and Mr. Jenner, is the correct one: the passage is too long to transfer to our pages, and we have already cited (Phytol. 836) a compressed description of the genus from the 'Naturalists' Almanack.'

3. *Polypodiaceæ.* In this group we have to mention the restoration of Bolton's original name of alpina to the Woodsia hyperborea of Swartz. On the preceding page we have introduced Mr. Newman's portraiture of this pretty little fern.

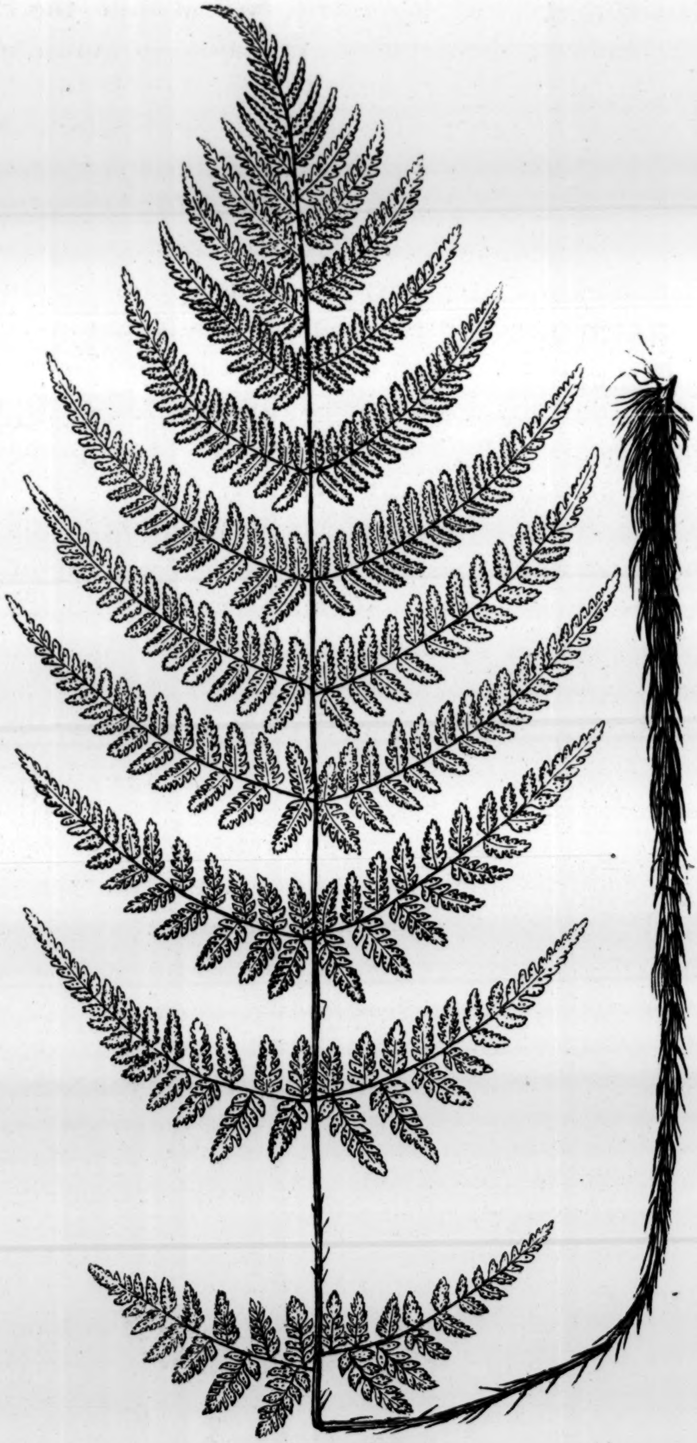
4. *Aspidiaceæ.* Under this division the dilatata question is gravely discussed, and, as we think, satisfactorily settled. The author begins with this candid admission of his former erroneous opinions.

> "On looking more carefully into those *similarities* which I supposed of sufficient importance to warrant the association of many forms under the specific name of *dilatata*, I find them invariably the concomitants of youth rather than the characteristics of perfection, and they become by degrees more and more obliterated, as the plants year by year advance towards maturity. The *differences*, on the other hand, so equivocally developed in seedling or starved individuals, become distinctly pronounced in the adult and vigorous; and a comparison of these, leaves me no choice but to cancel my former observations as erroneous, and to consider the names *dilatata* and *spinulosa* as having been applied to a family rather than to a species. Admitting this, it becomes a task of great delicacy to select an individual which shall bear alone all the honors of either patronymic. Fully appreciating the difficulty of the case, I have omitted both these names, and employed others which were originally, as now, restricted to *one* species."—p. 208.

Three species are then carefully and fully described, under the names of Lastræa spinosa, L. multiflora and L. recurva; the descriptions occupying twenty-seven pages, and being accompanied by numerous figures illustrating the circumscription of frond, the form of involucre, and the character of the scales. All the three appear to be most abundant species; together they constitute the Polypodium cristatum of Hudson, the Aspidium dilatatum of Smith and Babington, and the Aspidium spinulosum of Hooker. It will doubtless be objected, by some of our readers, that the old names should have been retained in preference to those with which we are comparatively unacquainted. On this point we are disposed to join issue: we submit that it is impossible to decide, from a Latin description of two or three lines, which of these species was the spinulosum of Müller or the dilatatum of Hoffmann; and we think Mr. Newman has done perfectly right in adopting for each the earliest name which combines the two postulates of being accompanied by an *intelligible* description, and of being *confined to a single species.* This practice is somewhat stringent perhaps, but it is certainly wholesome. On the two next pages we introduce figures of Lastræa multiflora and L. recurva as the two species which possess the greatest claim to be considered additions to the British Flora. Circumscription of frond is a point strenuously insisted on by the author, as separating these species; since, however it may approach in young specimens, it recedes in those which are mature: but add to this that the involucres, the scales, the glands, the scent, the venation, the form of pinnules (in one convex in the other concave), are all widely and unvaryingly different, he indeed were a bold man who, after going into such a mass of evidence, shall utterly reject the inferences, and again blend these two species with the third (L. spinosa) under a single name. We must not, however, be understood as expressing any decided opinion that Mr. Newman's species will be generally or rapidly adopted. We are too well acquainted with the disinclination there is to adopt the views of a *new man* (the pun is quite unintentional)—to enter on the difficult task of careful collation and examination, except under the banner of authority: it is only by degrees, and through the exercise of the most perfect candour, that conviction will reach the mind of the enquiring botanist.

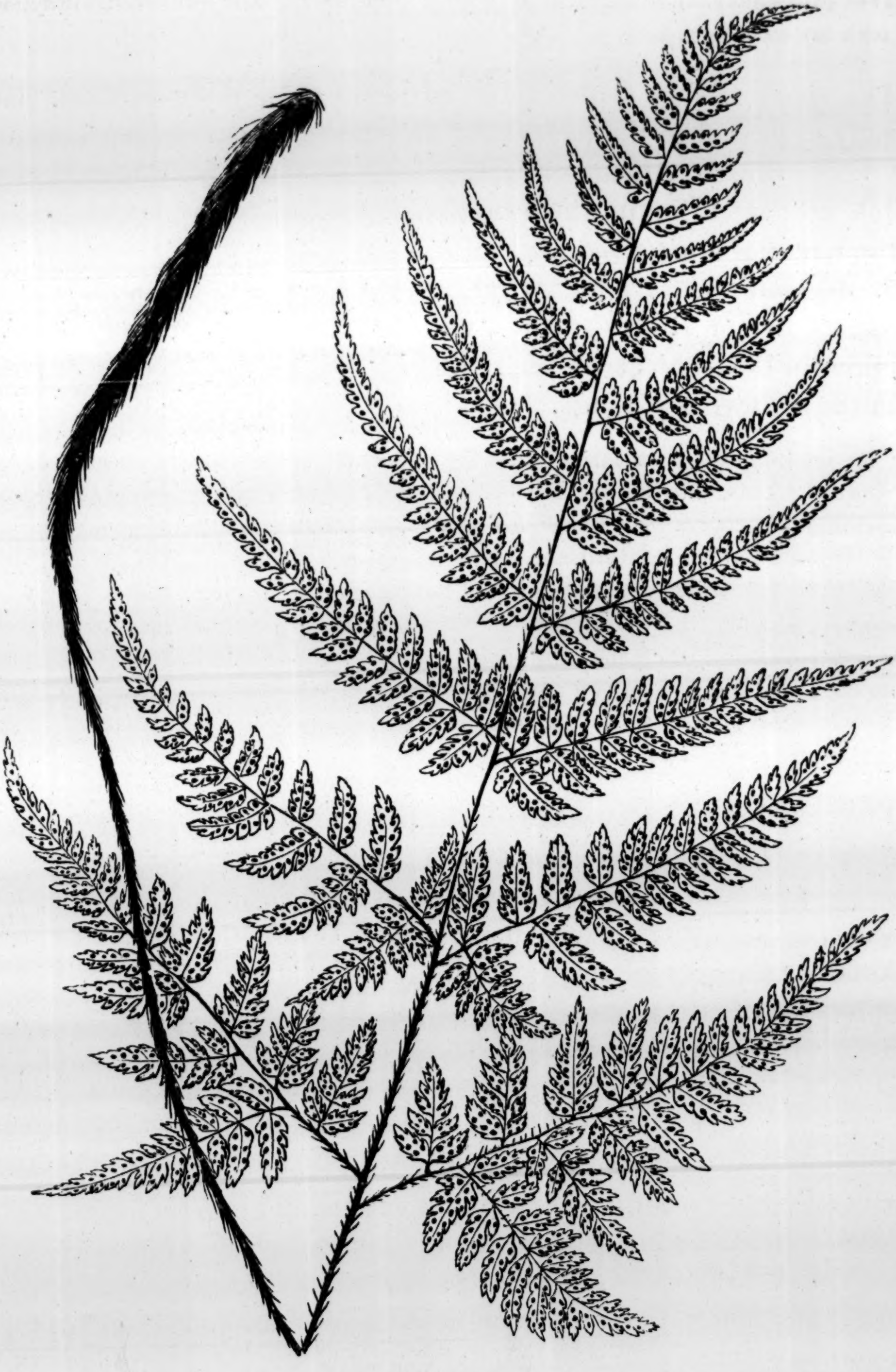
With regard to the species which we hold as the most important addition to our Flora — Lastræa recurva — Mr. Newman has already strong opponents, as will appear from the following paragraph.

> "When I first saw this beautiful fern in the North of Ireland, I was in company with Mr. William Bennett, and I instantly pronounced it a species new to Britain. I traced it in many of the Irish counties with the same feeling of certainty; and it was only in deference to the judgment of three distinguished botanists, the late Professor Don, Mr. Moore of Dublin, and Mr. Babington of Cambridge, that I at last abandoned my opinion, and consented to give the species as a variety of dilatata. Profes-



Lastræa multiflora.

sor Don, although he had frequent opportunities of consulting my somewhat ample materials on the subject, never in any degree wavered from his first opinion; and Mr. Moore and Mr. Babington, who have enjoyed the best possible opportunities of forming an accurate decision, having seen it growing in all states and in an infinite variety



Lastræa recurva.

of stations, still consider it a mere form of Last. dilatata. The testimony of Sir W. Hooker I have already adduced. In adding another species to our list of British ferns, I think it but a matter of justice to my readers to show that I stand opposed to four of our most distinguished botanists. On the other hand, it is no little consolation that I

> am able to announce the judgment of Messrs. Bree, Borrer and Jenner, as corresponding with my own."—p. 233.

The characters by which these ferns are to be distinguished, have already appeared in the pages of 'The Phytologist,' in our notice of the 'Naturalist's Almanack,' (Phytol. 837); the only alteration to which we have to invite the attention of botanists, is the substitution of the name of *multiflora* for that of *dilatata*.

5. *Aspleniaceæ*. Under Athyrium Filix-femina, the author comprehends five of Roth's species, without expressing any very decided opinion on the subject of their value. His views may be gathered from the following passage.

> "By retaining all these forms under the name of Filix-femina, in accordance with the views of Decandolle, Sadler, Hooker and Babington, I rather bow to the views of these eminent botanists than follow any of my own. It seems to me that three at least of the forms described by Roth, those adopted in the 'Naturalists' Almanack,' have the habit and appearance of species; but at the same time I cannot say that the grounds of separation adduced by Roth appear to me satisfactory: neither the scales, involucres, nor position of the clusters of capsules, are adduced as evidence; and surely, before adopting the species, we must learn whether these are dissimilar or identical. Roth is entitled to great praise for what he has done, but it is left for others to earn still greater praise by adducing real diagnostics to corroborate his views."—p. 247.

The question is perhaps one of the most difficult in the study of our British ferns. It appears that two of the most acute discriminators of specific differences insist on these plants being entitled to the rank of species; while others, whose names stand equally high, dismiss them as totally unworthy of mention, even as varieties: the latter view is adopted by British botanists, and seems to us uncourteous in the extreme. How can we in fairness object to the course occasionally pursued on the continent, of neglecting names imposed in Great Britain, in order that later continental names may be substituted, while we are deliberately and designedly neglecting the labours of a man like Roth, whose extreme carefulness is a pattern to us all?

After Athyrium Filix-femina, Asplenium fontanum, or perhaps more correctly, A. Halleri, should have followed in course, but the author omits it altogether, and passes on to A. lanceolatum. It is, perhaps, not generally known to what chance we are indebted for this fern in the list of British plants; the following particulars may interest some of our readers. Hudson, in his 'Flora Anglica,' gives *Polypodium fontanum* with the following habitat: "Habitat *in muris antiquis et rupibus.* supra Hammersham Church, D. Bradney; *in locis saxosis prope* Wybourn *in* Westmorlandia." Now if we study Hudson's mode of giving habitats, and his general accuracy as to counties, we may translate the passage thus: *Habitat* old walls and rocks above Hammersham Church, (authority) Mr. Bradney; and stony places about Wybourn, *both* in Westmoreland." The word *both* of course is not in the Latin, but the plan of Hudson's work warrants its insertion. Withering translates the passage fairly and literally, but other authors do not deserve the like praise. Sir J. E. Smith gives it thus, "On Amersham or, Agmondesham, church, Bucks, found by a Mr. Bradney, according to Hudson." This translation, it will be seen, is totally at variance with the original. We do not consider ourselves called on to pursue the subject further than to say that we cordially approve of the omission of Asplenium fontanum from the catalogue of British ferns.

Asplenium Adiantum-nigrum affords an instance of three continental being blended in one British species; and we again have to censure the unfairness or carelessness which has been instrumental to the result. We do not urge the adoption of all the species, but we urge the necessity of a dispassionate enquiry, and the expression of a candid opinion as to their value. We cite the descriptions from Sadler, as quoted in Mr. Newman's Appendix.

" *Asplenium obtusum*, Kit. Fronde ovato-triangulari basi bipinnatifida, medio bipinnata, apice simpliciter pinnata: pinnulis oblongis et laciniis obtusis remotis, apice inæqualiter obtuse dentatis, rhachi alata. * * * 'E rhizomate horizontali fusco perpendiculariter descendunt radiculæ tenues fuscescentes. Stipites 3—4-pollicares basi fuscescentes canaliculati nitidi e rhizomate adscendunt. Rhachis viridis est et margine foliaceo-viridi cingitur. Frons 3—4-pollicaris ovato-triangularis, viridis; siccatione obscurior evadens, bipinnata (*basi tripinnatifida*) est, pinnarum inferiorum pinnulis primariis pinnatifidis, laciniis cuneiformibus obtusis, apice inæqualiter dentatis, pinnulæ superiores etiam obtuse dentatæ sunt. Sori congenerum, in qualibet lacinia aut pinnula 3—4. Indusia membranacea.' Sadl. Adumbr. Epiph. l.c." Sadler, De Filicibus Veris Hungariæ, &c. p. 50.

" *Asplenium Adiantum-nigrum*, L. Fronde ovato-triangulari, basi bipinnatifida medio bipinnata, apice simpliciter pinnata, pinnulis oblongis et laciniis acutis approximatis acute dentatis, rhachi non alata. * * * E phrasi characteristica hujus plantæ et e descriptione præcedenti adnexa differentia harum adfinium specierum satis liquet."—Id. p. 51.

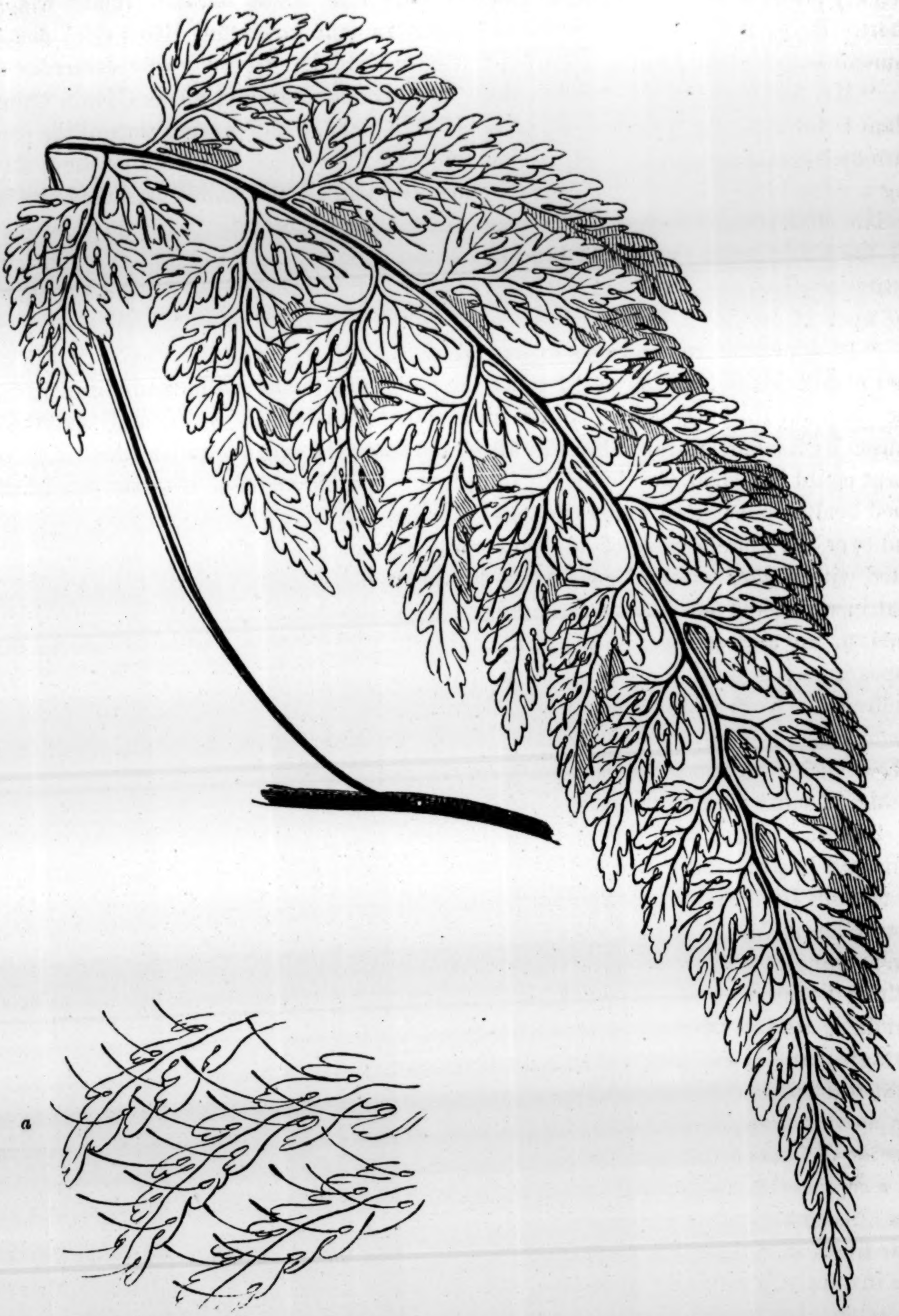
" *Asplenium acutum*, Bory. Fronde ovato-triangulari longe acuminata, pinnis pinnulisque oblongo-lanceolatis longe acuminatis, pinnis propriis et laciniis lanceolatis, approximatis, acute et profunde inciso-dentatis; dentibus subbidenticulatis. * * 'Radix et stipites Aspl. Ad. nigri: radix quippe dense fibrosa, fuscescens. Stipites ex una radice plures primum cum rhachide virides, demum profunde purpurascenti-fuscescentes, nitidi, supra sulcati. Frons—siccatione facillime nigrescens—½—1-pedalis, acutissime acuminata, inferius perfecte tripinnata, pinnis propriis acute incisis, in medio bipinnata, in apice rhachis longe producta, solum acute dentato-incisa est, quod idem de rhachidibus propriis pinnarum oblongo-lanceolatarum longe v. longissime productarum valet. Laciniæ omnes lanceolatæ, acutæ, acutissimæ et profunde inciso-dentatæ. Sori breves solitarii in laciniis, has demum obtegentes. Indusia membranacea.' Sadl. Epiph. l. c."—Id. p. 51.

6. *Hymenophyllaceæ.* Trichomanes speciosum. Although four years have now elapsed, it will be fresh in the recollection of many of our readers, how strenuously the author urged the adoption of the name *speciosum* in preference to that of *brevisetum;* how the world of British botanists was almost to a man arrayed against him; how it was held to be impossible either that a tropical plant should exist in Ireland, or that, so existing, Robert Brown should have overlooked the fact. It has come within the compass of our knowledge, that the daring alteration was repeatedly pointed out as a proof of our author's want of information and want of ability to grapple with the subject of nomenclature. What has now become of the name brevisetum? There is but one instance of its being retained; we allude to the 5th edition of Hooker's 'British Flora:' and here we find the name brevisetum restored, and that of speciosum degraded to the rank of a synonyme; not as the *speciosum* of Willdenow — not as the *speciosum* of Mr. Newman, who pointed out its identity with Willdenow's plant, but of the Edinburgh Catalogue; and yet the authors of that Catalogue merely adopt Mr. Newman's views, as is candidly admitted by Mr. Babington himself.

We turn to a pleasanter subject, the discovery of a new form, if not species, of Trichomanes; one so distinct that Mr. Smith supposes it to be the *Trich. radicans* of Swartz. Mr. Mackay's specimens now before us, are so labelled on Mr. Smith's authority; but surely this has been done somewhat too hastily, for in all the specimens of T. radicans we have seen, the frond is perfectly sessile, whereas in all the Irish specimens it is distinctly stipitate. Mr. Newman has, we think, exercised a sound discretion in keeping the name of radicans quite out of view. Whether or not the new plant could by possibility be the true T. radicans; whether the Killarney plant was really distinct, and whether, if not distinct, Swartz's name should not be applied to both; are questions which were agitated for months without any satisfactory result. The author, after citing the published notices of this interesting plant, thus continues.

"Mr. Andrews has obligingly furnished me with the following characters of the two plants. The first I will call Trichomanes speciosum, var. *Andrewsii.*

"'*Trichomanes* —— ? Frond lanceolate, twice pinnated, lower pinnæ distant,



Frond of Trichomanes speciosum, var. *Andrewsii*, natural size. *a*. Portions of pinnules showing the recurved receptacles.

short, ultimate segments of the pinnæ decurrent serrated lobed linear acute. Rachis winged, very long. Receptacles six times longer than the involucra. Root long scarcely tomentose. Habitat, moist rocky cave, Glouin Caragh, Kerry.

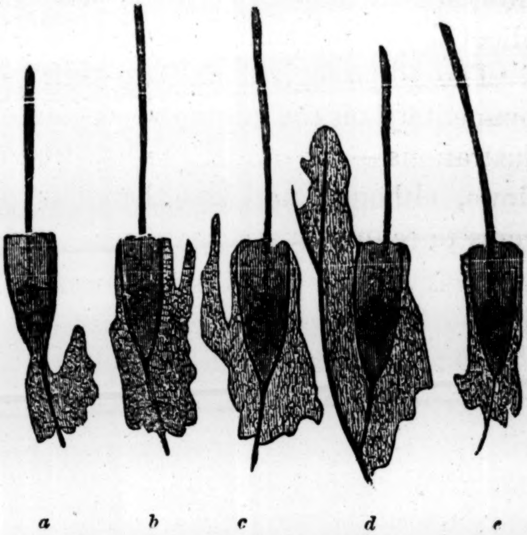
"'*Trichomanes speciosum.* Frond angular thrice pinnated, lowest pinnæ longest densely crowded and tripinnated, lobes of the pinnæ linear blunt. Rachis winged, short. Receptacles two or three times longer than the involucra. Root thick densely tomentose. Habitat, Turk, Killarney; Glouin Caragh; Mount Eagle, Kerry.'

"Mr. Andrews further observes, that 'the striking character of the Glouin Caragh plant is the amazing length of the receptacles, which, in the growing state of the plant, turn up from the involucra in a curved manner [see figure *a* on the preceding page] showing a most bristly appearance over the entire frond: all the fronds presented the lanceolate character, the lower pinnæ being distant and short; the ultimate segments of all the pinnæ are serrated, the pinnules being decurrent and running to a point; the entire length of the frond was sixteen inches, and from the base of the lowest pinnæ to the apex of the frond eleven inches.'

"In opposition to the views expressed by these three eminent botanists, I will cite that of Mr. Moore, who says, 'I think the *new* Trichomanes to be nothing more than the old plant fully developed, and more attenuated in all its parts, and that this is caused by the dark warm habitat in which it grew. In order to prove whether the old plant could not be altered by being subjected to a different kind of treatment, I had a good healthy pot placed under the stage of a green-house, where it got very little light, and over the glass a piece of old carpet was thrown which was kept constantly saturated with water, so that I considered the plant placed nearly in a similar position to that in which the new plant was found. I soon found that the fronds might be lengthened to an almost incredible extent, and that they became more simple in their appearance; in both these respects well agreeing with the plant discovered by Mr. Andrews.' No fruit has been produced, so that it remains a question whether the *receptacle* also can be elongated by this treatment. Mr. Ogilby, of Dublin, whose name I have before mentioned as a kind contributor of specimens, seems quite to coincide in Mr. Moore's view of the case.

"In accordance with the views previously urged, when describing Cystopteris fragilis and Lastræa multiflora, I have endeavoured to compare the most mature and perfect fronds from each locality, and the result appears to be 1st, — that the specimens from Glouin Caragh are far more mature and fruitful than those from Killarney: it is a rare thing to obtain specimens from the latter station in a thoroughly mature state; I think I may say that not one frond in fifty exhibits involucres, and not one in many hundreds attains the perfect development and fruitfulness displayed by the Glouin Caragh plant: but 2ndly — I find that the most mature of the Killarney specimens most recede from the Glouin Caragh specimens, a circumstance rather opposed to the supposition that the two are identical, since in general we find ferns developing their specific differences more strikingly as they approach perfection. 3rdly — The length of receptacle is another test of perfection: the Killarney plant, grown at Killarney, has a receptacle of very different length; in the most perfect specimens it is at least four times as long as the involucre, in the least perfect it scarcely protrudes beyond the involucre, and under cultivation it is seldom to be seen at all, thus evidently proclaiming that its length in some measure depends on health, maturity, and a congenial situation. Willdenow, in the passage cited, describes the receptacle as four times the length of the involucre; and I cannot assert either that its frequent departure from this character at Killarney proves anything more than that such departure is a testimony of imperfection, or its attaining this character at Glouin Caragh is to be attributed to any other causes than congenial situation. The form of frond may be capable, as Mr. Moore asserts, of great elongation, but there is no evidence that the relative length of the pinnæ is also altered: it appears to be a fundamental character of a deltoid frond, that the lowest pair of pinnæ shall be longer than the second pair, the second longer than the third, and so on; and, as far as I am aware, this character is constant in cultivation; at least I can safely assert that it is so in Asplenium Adiantum-nigrum, Lastræa recurva, &c. The apex of the frond is often lengthened very remarkably, but the lower pinnæ almost invariably partake of a similar elongation. In lanceolate fronds, the lowest pair of pinnæ are usually shorter than the second pair, the second shorter than the third; and this character in Asplenium lanceolatum, Lastræa multiflora &c., remains unaltered under any condition. Now the two Trichomanes, although less decidedly deltoid or lanceolate than the ferns I have cited, follow the same law, each preserving respectively its deltoid or lanceolate tendency under cultivation.

Again, there is a decided difference, as far as I can learn from my limited materials, in the involucres of the two plants. In the Killarney plant the involucre stands out distinctly from the membranous frond, and appears almost stalked, while in all my specimens of the Glouin Caragh plant it is more or less united with the frond by a continuous margin or wing; this will perhaps become more evident from an inspection of the figures in the margin, which fairly express the differences observable in my specimens from each station. Supposing that the deltoid and lanceolate fronds are constant in each plant, and that the exserted and partially embedded involucres are also constant, I think there can be little doubt that Mr. Andrews's plant claims the rank of a species; the extraordinary length of the receptacle, the less divided state of frond, and the less tomentose rhizoma, so ably pointed out by the Irish botanists, will furnish additional support of such a decision, although I scarcely like to take either of these as a specific character. Still I hesitate to add a species to our British Ferns unless possessed of more ample means for forming an opinion; and I give to the plant the name of *Andrewsii* as a *variety only*, respectfully begging of subsequent describers, that should their views coincide with mine, they will still allow the plant to bear the name of a naturalists to whose ardour and intelligence the science of Botany is under so many and such important obligations."—p. 315.



a. Involucre of the Killarney plant in its usual state.
b—*e*, Different states of involucre of Glouin Caragh plant.

We are desirous of recording our opinion that Trichomanes Andrewsii will hereafter rank as a distinct species; its descrepancies with speciosum are fully as great as those of Hymenophyllum tunbridgense and H. unilaterale; and there seems a general disposition to consider these permanently distinct.

Concerning the remaining tribes we have little to add. The description and figure of the young frond of Botrychium Lunaria, a year prior to its appearance above ground, are new and interesting. The monograph of Lycopodiaceæ is already before the readers of 'The Phytologist,' and to this there is no material addition, except a list of habitats; and under Isoetes lacustris an interesting detail of its mode of increase, which accounts very clearly for the crowded and elongated state in which it is frequently found. The reprints comprised in the Appendix will be acceptable to botanists.

It may perhaps be expected that we should offer a more decided opinion as to the merits of this work; but let those who think so, recollect the identity of the *author* of the 'History' and the *proprietor* of 'The Phytologist,' and we think it will be allowed that a mere commentary on the contents, and an exhibition of a very few of the illustrations—six out of one hundred and forty,—is all that decency allows, although not less than our position as faithful chroniclers seems to require.

ART. CCXIV.—*Further remarks on Botanical Classification.*

By PHILIP B. AYRES, Esq., M.D.

Thame, April 18, 1844.

SIR,

WHEN I penned my remarks on Mr. Edmonston's views, I certainly did not expect that they would have called forth as his champion a gentleman occupying so high a station in the scientific world as the Vice-President of the Linnean Society. Notwithstanding the great respect I feel for one so distinguished, and fully aware as I am, of the difficulty a raw recruit, like myself, must encounter in opposing a veteran, I must crave your permission to offer a few notes upon the notes of Mr. Forster; and this I shall do with all proper courtesy and deference. I find his notes to consist:—

1. Of remarks upon the terms *artificial* and *natural.*
2. On the meaning of the term *species.*
3. On some innovations of fashionable modern and juvenile botanists.

In the first place, with respect to the artificial and natural systems, I find Mr. Forster affirming that the term natural is equally applicable to the systems of Linnæus, of Jussieu, of Decandolle, &c.; but that the system of Linnæus, preeminently the artificial system, does not show the evident affinity so clearly as the others.

I have been accustomed to consider a system as more natural in proportion as it brings together those beings or substances that bear the greatest resemblance to each other in all their parts, and *vice versa,* as less natural in proportion as these "evident affinities" are disregarded. Whether I am right in my opinion is another question; but until the above statement is proved to be incorrect, I shall feel myself bound to adhere to it. Tried by the above rule, it is easily shown that the modern so-called natural system deserves that name, while the term "artificial" is justly applied to that of Linnæus, in which so many incongruous forms are united under the same order and class.

Secondly. — I have always thought that "species" was understood by naturalists *as a collective term, including all individuals possessing similar characters, and not applicable to any one individual.* Thus it is improper, in my opinion, to say that a plant, for example, of Mentha viridis, is a species; but rather, that it belongs to the species *viridis* of the genus *Mentha,* the species being a collective term, under which any number of individuals may be ranged. If each individual be a species, it is evident that there are as many species as individuals, which is absurd. The characters of individuals cannot be the individuals themselves. Moreover, *species* being a collective term, cannot exist in external Nature, but becomes an intellectual conception or idea existing in the mind of man alone; in short, as I have called it in my former communication, an induction. I shall now endeavour to show proofs of this opinion.

The term species, it must be remembered, is applicable to all natural substances and beings; to animals, to plants, to minerals. It signifies, according to its etymology, a sort or kind. How then does the mind of man arrive at this term? Obviously the only method is by comparison and abstraction. Man sees around him a vast multitude of substances and beings; prompted by his natural curiosity, he examines these objects, and finds that certain individuals agree or disagree in their form, their sensible qualities and habits. Placing before his mind a number of individuals, he finds them to agree in all their more important characters, giving to them a kind of identity: and he thence draws the deduction or induction that they belong to the same kind or species. It follows that the *species* is neither an individual nor any number of individuals, but a collective term including all individuals that have existed, do, or may exist, possessing similar characters; and hence the species is entirely ideal. Proceeding in the same manner by comparison and abstraction, he arrives at the higher inductions of genus, order, class, &c. Having thus formed an intellectual ladder, he can ascend or descend by it at pleasure; he can follow the original ascending series, or, starting from the higher divisions, he can descend to the individual. The former is done in the construction of species, genera, classes &c.; the latter, when possessing these deductions, he wishes to arrive at particulars. The one is the ascent from particular to general; the other, the descent from the general to the particular.

Thus species, like genus, order and class, being shown to be a purely intellectual conception capable of being expressed by certain characters, it follows that all substances possessing these characters will necessarily belong to, or be included under the *species*.

As the term species is applicable to minerals, to which the power of genesis, in the usual sense of the word, is denied, it follows that the power of generating their like is an accidental, though important, adjunct to the idea of species when applied to organized beings. The power of genesis is then one only of the characters of the species. Thus we are again reduced to the creation of individual plants and animals, having as one of their most important characters the power of reproducing similar individuals.

The foregoing exposition of my views relating to species will explain why I consider that the evidence of varieties is opposed to Mr. Edmonston's opinions, since varieties will be equally intellectual conceptions, differing simply from the primary idea of the species in some unimportant character; — a minor induction. Varieties are of two kinds; those trivial variations that give the peculiar character to the individual, and those more important variations which are constantly found in a certain number of individuals, and are often propagated for several generations. I shall be glad to be informed how the latter are to be distinguished from species, according to the views of my opponents! The very difficulty of distinguishing varieties from species; the alternate exaltation of varieties into species and depression of former species to varieties which abound in all works on systematic Botany, show that they are inductions from a smaller number of characters.

With reference to the quotation from Dr. Lindley's 'Key to Botany,' I have to apologise for the oversight I have inadvertently made, in including the term species among the groups to which he refers in the passage quoted by Mr. Edmonston; but if the previous argument be correct, the lapsus will be of little consequence, since the quotation will be as applicable to species as to any other group.

Thirdly. — I am sorry to see the term "*fashionable*" so constantly applied by the advocates of the Linnæan school to those who follow what they consider a better system, as a term of reproach and ridicule. Fashion implies change, and is used in that sense by the opponents of the natural system; referring, I suppose, to the changes that system has undergone: but surely it must be allowed that progression towards perfection is better than to remain in the same immoveable unimprovable state. The method of Linnæus itself was a progressive change on the older and more imperfect systems that preceded it, as, I think, the system of Jussieu, DeCandolle &c., is a progression from the more imperfect system of Linnæus. Let us expect, then, that in proportion as our knowledge of Nature increases, changes of system must follow as necessary and beneficial results.

As to Nature's working by "carpenter's rule," I can only remark that did not Nature work by rule, the earth would be a chaotic mass; those nice dependencies of beings and substances on each other, and the *order* which even a superficial study of natural objects positively obtrudes upon us, would neither be discoverable, nor indeed would exist. Any one who observes the variations by which allied plants placed under different species approach each other, will see that there must be a type or model on which the species must be based; the general derived from the individual.

If my interpretation of the term species be correct, it will follow that man does make species, as well as genera and other groups, and consequently that the expression "exalting varieties to the rank of species" &c., may be correctly used.

Whoever will compare the various catalogues of British plants, for example, will see that what were formerly termed species are either divided into two or more modern species, or, on the other hand, depressed to the rank of varieties! And how are these divisions, these exaltations and depressions, brought about? By observation of their reproduction by seed? *No:* but by the variation of the value of different characters in the minds of different botanists! What is the value of the term species if it be liable to such mutations?

I have now, Sir, expressed, as clearly as I am able, my notions on the subjects contained in the letters of Mr. Edmonston and Mr. Forster. I shall hail with pleasure the *proof* that they are incorrect, but at the same time I must express my gratification that while Mr. Forster has attacked my opinions on a *few* minor points, he has left untouched the great question of the comparative beauty and utility of the two rival systems.

I hope, Sir, that these observations will be considered, by yourself and readers, as worthy of being "called a reply" to the animadversions of Mr. Forster. And beg to subscribe myself,

Your obedient Servant,
PH. B. AYRES, M.D.

To the Editor of 'The Phytologist.'

ART. CCXV.—*County Lists of the British Ferns and their Allies.*

Compiled by EDWARD NEWMAN.

(Continued from p. 514).

SOMERSETSHIRE.

†Adiantum Capillus-Veneris. Said to grow in the mouth of an old well at Clevedon, *Leo. H. Grindon*.

Lomaria spicant. (Dr. Southby), Leigh woods, Bristol (G. Rogers), *H. C. Watson;* Embrough, Wells, but not general, *T. B. Flower;* not uncommon near Bristol, *G. H. K. Thwaites.*

Pteris aquilina. (Dr. Southby), *H. C. Watson ;* frequent on heaths and barren places, *T. B. Flower ;* common near Bath, *C. C. Babington ;* common near Bristol, *G. H. K. Thwaites.*

Allosorus crispus. About a mile from Simmon's bath, very sparingly, on a stone wall, in company with Polytrichum alpinum, *N. Ward, jun.*

Polypodium vulgare. (Dr. Southby), *H. C. Watson ;* frequent in the county, *T. B. Flower, C. C. Babington ;* very common near Bristol, *G. H. K. Thwaites.* Var. β. *serratum.* With the above, *T. B. Flower ;* Cheddar, the variety figured at p. 22 of Newman's Ferns, (W. C. Trevelyan), *H. C. Watson ;* exceedingly fine on old trees in Leigh wood &c., *Leo. H. Grindon.*

Polypodium Dryopteris. Rocky places on the Mendip hills, Bristol and Bath, *T. B. Flower ;* Widcombe house, Bath, now lost? (Mr. Sole), *C. C. Babington.*

Polypodium calcareum. Cheddar cliffs, *John Harris, jun.,* (W. C. Trevelyan), *H. C. Watson ;* Bath, Leigh woods, Bristol, Cheddar cliffs and Mendip hills, *T. B. Flower ;* Friary woods, Hinton abbey (T. B. Flower), *C. C. Babington.*

Cystopteris fragilis. Cheddar cliffs, *E. Lees,* (Dr. Southby, W. H. Trevelyan), *H. C. Watson ;* Leigh woods near Bristol (G. H. K. Thwaites to Bot. Soc. Lond.) *H. C. Watson ;* Bath, Embrough, Wells, Cheddar, Clevedon, Brockley coombe, and frequent throughout the county, *T. B. Flower;* Widcombe hill (Dr. H. Gibbs), quarries in Hampton down, *C. C. Babington;* abundant on Dundry down, and in small quantities in Nightingale valley, Leigh woods, *G. H. K. Thwaites;* on the oolite at Dundry; Mendip hills above Burrington; Leigh woods, near the foot of Nightingale valley, very luxuriant, *Leo. H. Grindon.* *C. regia.* On the top of the Mendip hills (Sole's M.S. Flora of Somersetshire), Blackstone, *Turner and Dillwyn.*

Polystichum aculeatum. (Dr. Southby), *H. C. Watson;* generally distributed throughout the county in woods and hedge-banks, *T. B. Flower;* a variety, perhaps F. Lonchitidi affinis of Ray, among the Cheddar cliffs, *E. Lees;* Kelston, Claverton, Friary wood (T. B. Flower), Langridge (Dr. Alexander), *C. C. Babington;* abundant near Bristol, *G. H. K. Thwaites.*

Polystichum angulare. With the above, *T. B. Flower;* Beechen cliff and Landsdown, near Bath; Hinton abbey, (T. B. Flower), *C. C. Babington;* Long Ashton, *Leo. H. Grindon.*

Polystichum lobatum. (Dr. Southby), *H. C. Watson;* Bath, Bristol, and Mendip hills, and throughout the county, *T. B. Flower;* on the oolite at Dundry, *Leo. H. Grindon;* Prior park, Midford castle (T. B. Flower), *C. C. Babington;* abundant on Dundry down, and sparingly in Leigh woods, *G. H. K. Thwaites;* rocks at Burwell's wood, facing the hot wells (Mr. Sole), *Turner and Dillwyn.*

Lastræa Oreopteris. (Dr. Southby), *H. C. Watson;* Leigh wood, Bristol, frequent, and on the Mendip hills, *T. B. Flower;* Leigh woods, *G. H. K. Thwaites.*

Lastræa Thelypteris. (Dr. Southby), *H. C. Watson;* Burtle, Widmore and Glastonbury moors, frequent, and no doubt to be met with elsewhere in the county, *T. B. Flower.*

Lastræa Filix-mas. (Dr. Southby), *H. C. Watson;* common, *Leo. H. Grindon;* throughout the county: the var. *δ. serrata,* is recorded as having been found at Nettlecombe, by Mr. W. C. Trevelyan, *T. B. Flower:* common near Bath, *C. C. Babington;* common near Bristol, *G. H. K. Thwaites.*

Lastræa dilatata. Bath; Leigh woods, Bristol; Mendip hills, Embrough, Wells, Axbridge, and generally throughout the county, *T. B. Flower;* Friary wood, Warley and Claverton (T. B. Flower), Hampton woods, *C. C. Babington;* common near Bristol, *G. H. K. Thwaites;* St. Ann's wood, *Leo. H. Grindon.*

Lastræa spinulosa. With the above, *T. B. Flower;* on the oolite at Dundry, *Leo. H. Grindon.*

Athyrium Filix-femina. (Dr. Southby), *H. C. Watson;* Bath; Leigh woods, Bristol; Embrough, Wells, Axbridge, Clevedon, Brockley coombe, and throughout the county, with the varieties β. and γ. *T. B. Flower;* Friary woods, Hinton (T. B. Flower), Claverton, *C. C. Babington:* abundant in the vicinity of Bristol, *G. H. K. Thwaites.*

Athyrium irriguum. Not unfrequent upon hill-slopes, *G. H. K. Thwaites.*

Asplenium Adiantum-nigrum. (Dr. Southby), *H. C. Watson;* Bath, Bristol, Wells, Glastonbury, Cheddar rocks, upon the Mendip hills, Weston-super-Mare, Steep Holmes in the Severn, and very generally distributed throughout the county on walls, rocks and hedge-banks, *T. B. Flower;* Kelston, S. Stoke, Widcombe, Colerne, *C. C. Babington;* very abundant in the neighbourhood of Bristol, *G. H. K. Thwaites.*

Asplenium marinum. Clevedon, Weston-super-Mare, upon rocks near the sea but not general, *T. B. Flower;* on rocks between Portshead and Clevedon, *G. H. K. Thwaites;* in a cave on a rocky beach near Clevedon, *Leo. H. Grindon.*

Asplenium Ruta-muraria. (Dr. Southby), *H. C. Watson;* distributed throughout the county, *T. B. Flower;* common near Bath, *C. C. Babington;* abundant on rocks and walls in the vicinity of Bristol, *G. H. K. Thwaites;* old walls at Ashton, and in Leigh woods, *Leo. H. Grindon.*

Asplenium Trichomanes. (Dr. Southby), *H. C. Watson;* with the above, *T. B. Flower;* common near Bath, *C. C. Babington;* abundant in the vicinity of Bristol, *G. H. K. Thwaites;* old walls at Ashton, and in Leigh woods, *Leo. H. Grindon.*

Asplenium septentrionale. Rocks on the south side of Blackford hill, plentifully, Mr. Brown, *Turner and Dillwyn;* in abundance on stone walls near Glenthorne, about six miles from the boundary of Devon, *N. Ward, jun.;* Glenthorne, (W. S. Hore to S. P. Woodward), *H. C. Watson.*

Scolopendrium vulgare. (Dr. Southby), *H. C. Watson;* frequent throughout the county, *T. B. Flower;* common near Bath, *C. C. Babington;* abundant near Bristol, *G. H. K. Thwaites;* hedge-banks and walls, very fine; sea-bank at Clevedon, *Leo. H. Grindon.* Var. *β. crispum.* Generally distributed, but perhaps not quite so frequent as the above, *T. B. Flower.*

Ceterach officinarum. Cheddar cliffs; on the rocks of carboniferous limestone at Brean down, *E. Lees;* (Dr. Southby); St. Vincent's rocks (G. H. K. Thwaites to Bot. Soc. Lond.), *H. C. Watson, John*

Harris, jun., C. C. Babington; commonly distributed throughout the county, on rocks and old walls, *T. B. Flower;* abundant on rocks in Leigh woods, and very common on walls in the vicinity of Bristol, *G. H. K. Thwaites;* Leigh woods, old walls about Ashton, Tickenham and Clevedon, exceedingly luxuriant, *Leo. H. Grindon.*

Hymenophyllum Tunbridgense. In a shady lane near Shipton-Mallet, Sole's M.S. Flora of the county of Somerset, *T. B. Flower.*

Osmunda regalis. (Dr. Southby), *H. C. Watson;* Glastonbury, Wedmore and Burtle moors; it has also been mentioned as growing in Leigh woods, Bristol, but I have not been able to detect it, and the situation does not appear favourable for its growth, *T. B. Flower;* Glastonbury and Burtle turf-moors Mr. Sole, *Turner and Dillwyn.*

Botrychium Lunaria. Bath, Shirehampton near Bristol, but sparingly, *T. B. Flower*; field between the lane leading from Bath to Claverton and the farm-house on the down (Dr. Alexander), *C. C. Babington*; commons and waste lands in divers parts of the county (Mr. Sole), *Turner and Dillwyn.*

Ophioglossum vulgatum. (Dr. Southby), *H. C. Watson;* frequent throughout the county in boggy ground, *T. B. Flower*; near Bath, *C. C. Babington.*

Lycopodium clavatum. (Dr. Southby), on Exmoor near Linton, *H. C. Watson;* Clevedon, in one locality, *Leo. H. Grindon.*

Lycopodium alpinum. (Dr. Southby), *H. C. Watson.*

Lycopodium Selago. (Dr. Southby), *H. C. Watson.*

Pilularia globulifera. Wet places on Black and Maiden downs, (Mr. Sole), *Turner and Dillwyn.*

Equisetum hyemale. Canal bank, Bath (Dr. Davis), *C. C. Babington*

Equisetum arvense. (Dr. Southby), *H. C. Watson*; Bath, Bristol, and in fact variously distributed, more or less, *T. B. Flower;* in the Canal and Brass-knocker woods near Bath, *C. C. Babington.* A variety of this occurs with the branches very generally compound, in Marshfield lane, near Bath, *C. C. Babington, T. B. Flower.*

Equisetum Telmateia. (Dr. Southby), *H. C. Watson;* generally distributed more or less, *T. B. Flower;* near Bath, *C. C. Babington.* A variety of this also occurs, with the branches compound, in company with the above, *T. B. Flower.*

Equisetum palustre. (Dr. Southby), *H. C. Watson;* not very generally distributed, *T. B. Flower, C. C. Babington.* A variety of this occurs in Marshfield lane, near Bath, with each simple branch bearing a small catkin, *T. B. Flower.*

Equisetum fluviatile. (Dr. Southby), *H. C. Watson.* Bath, Embrough ponds, but by no means general, as far as I have observed, *T. B. Flower*.

Equisetum sylvaticum. (Dr. Southby), *H. C. Watson;* not very generally distributed, *T. B. Flower:* Batheaston (Miss Lonsdale), *C. C. Babington*.

EDWARD NEWMAN.

(To be continued).

ART. CCXVI.—*Varieties.*

472. *List of Agarics found near Hitchin.* I send you the following list of Agarics found within five miles of Hitchin, in Hertfordshire, thinking it may be interesting to some of your readers, and invite some interesting corespondence on the subject, as well as perhaps induce some of your correspondents to furnish similar lists from their own neighbourhood. The nomenclature is that of the 'British Flora.' Coloured drawings from fresh specimens have been taken of all except those marked with an asterisk. I hope to furnish a more extended list of the other genera of this greatly diversified order at a future time.

Agaricus phalloides
* vaginatus
muscarius
procerus
excoriatus
cristatus
granulosus
melleus
cerasinus
fulvus
rutilans
multiformis
personatus
emeticus
cilicioides
uvidus
hysginus
deliciosus
* quietus
subdulcis
theiogalus
* rufus
infundibuliformis
giganteus
nebularis

Agaricus fumosus
* candicans
* dealbatus
pratensis
virgineus
psittacinus
conicus
coccineus
laccatus
sulphureus
radicatus
velutipes
fusipes
butyraceus
* dryophyllus
peronatus
oreades
porreus
esculentus
tenacellus
conigerus
Clavus
ramealis
androsaceus
* fœtidus

Agaricus epiphyllus
Hudsoni
alcalinus
galericulatus
polygrammus
strobilinus
purus
lacteus
stylobatus
tenerrimus
epipterygius
camptophyllus
corticola
Fibula
umbelliferus
Campanella, β. badipus
fragrans
cyathiformis
stypticus
pascuus
cinnamomeus
aureus
squarrosus
mutabilis
collinitus

*Agaricus elatus
fastibilis
flavidus
flocculosus
*rimosus
geophyllus
tener
melinoides
involutus
variabilis

Agaricus Georgii
*campestris
præcox
semiglobatus
æruginosus
lachrymabundus
lateritius
fascicularis
stipatus
semiovatus

Agaricus disseminatus
comatus
micaceus
cinereus
niveus
plicatilis
*ephemerus
glutinosus
rutilus

Wm. Dawson ; Hitchin, February 23, 1844.

473. *Note on the Meetings of the Botanical Society of Edinburgh.* The Edinburgh Botanical Society does continue its meetings, and has had a constant supply of valuable papers. The 3rd part of the Transactions is now printing at Edinburgh, and will conclude the first volume. The commencement of Vol. 2 is also in the press, and will be published in a few months. It will contain papers fully equal to those contained in the former parts. — *C. C. Babington ; St. John's Coll. Cambridge, March* 5, 1844.

[An apology is due to Mr. Babington for the omission of the above note from our April No.; the omission was purely accidental, the letter from which it is an extract having been mislaid. The note refers to an observation on the wrapper of the March No., and is satisfactory inasmuch as it shows that the meetings of the Edinburgh Society are still held; but it does not explain why we have not been favoured with the reports of proceedings at any of the meetings held during the present session.—*Ed.*]

474. *A Word on Worcestershire Botany.* I observe reported in the February No. (Phytol. 875), a notice of a botanical excursion by Mr. S. P. Woodward, in Warwickshire, Worcestershire, &c., which seems to call for a few remarks. I have nothing to say against the Irish observations, where, sensibly enough, Mr. W. says he "took Mr. Newman's 'Irish Notes' in his hand," and had Dr. Taylor as a guide. Now if he had acted on the same principle throughout his journey, surely his botanical notes would not have been so meager respecting Worcestershire, more especially as he was near good sporting-covers, *had he but known it.* If a botanist, professedly travelling for scientific purposes, will make no enquiries, and take no note as to what has been previously done in the district he is reviewing, how can he expect that his nose only will guide him to the most favourable localities ? I mention this as a hint to all collecting botanists, and not only to Mr. W. This gentleman states that he spent a week in Worcestershire, but it "afforded him very little scope for botanizing, the interest of the country being chiefly geological." He mentions being at Kidderminster, where the returns were *nil ;* but why not have pro-

gressed to Bewdley forest, only five or six miles from thence, where the curious Pyrus domestica grows, and where Geranium sylvaticum and Epipactis ensifolia occur in profusion? Here also he might have met with Rubus suberectus and R. saxatilis, to say nothing of many ferns. The Clent Hills between Kidderminster and Stourbridge, Mr. W. says "have *no rills or ponds*," and "are *entirely* destitute of ferns." Surely this is much too sweeping an observation. I have not been very lately to the Clent hills, so cannot say whether or not every fern has now disappeared; but I happen to have by me a written note, made on the spot, as to the existence of *water* there: and I would not mind undertaking to produce at least half a dozen species of ferns from the same vicinity, if the onus were laid upon me to do so. My note says,—"The Clent hills consist of several green undulating eminences, now all enclosed, stretching from N.E. by N. to S.E. by S., insulated from each other by longitudinal valleys winding from west to east. The two principal hills are Clent proper and Walton, the latter of which, being the highest, I found by barometrical observation to be 875 feet in altitude. The principal valley is that between Clent and Walton hills. *A stream gushes along it*, passing out to the west near Clent church, and finally emptying itself into the Stour." But oddly enough, if *my* testimony is insufficient, the 'Saxon Chronicle' tells us that at "Cowdale in Clent," a *spring of water* gushed out of the ground at the spot where Prince Kenelm, only son of Kenulph, King of Mercia, was basely murdered in 819, at the instigation of his villanous sister Quendrida, whose "ugly mug," with horrible grinning teeth, yet appears on the wall of St. Kenelm's chapel, a short distance eastward of Clent hill. *A spring of water actually now arises* on the east side of this chapel, forming a small stream that descends into a woody dingle, where I recollect observing in profusion Adoxa moschatellina and Chrysosplenium alternifolium, so often companions of each other. But not to forget St. Kenelm and the miraculous spring of water, so strangely lost sight of by Mr. W. One might have rested satisfied that the spring now rising in St. Kenelm's chapel-yard, was the identical holy spring of the Saxon Chronicle; but fortunately for our present purpose, we get another draught of cold water by the aid of Mr. Scott's 'History of Stourbridge,' who, at p. 292, tells us that at the distance of less than a mile southward of the chapel, "a most beautiful chrystal fountain arises," which, *he* kindly suggests, is the "real original" miraculous fountain owing its rise to poor Prince Kenelm's murder! However this may be, I trust I have obtained a trifling sprinkling at least for the arid

Clent hills, which future botanical ramblers will do well to avail themselves of. Mr. W. mentions the Rubery-hill, "flanking the Bromsgrove Lickey;" but if he had stepped on two miles farther, to the Bromsgrove Lickey itself, he might have perceived one of the most interesting localities for Worcestershire plants, and almost the only spot in the county whose Botany has anything of a subalpine character — gloomy hills black to their very summits with bushy plants of Calluna vulgaris, interspersed with Erica cinerea and Tetralix, woods filled to repletion with Vaccinium Myrtillus, and bogs containing Narthecium ossifragum, Vaccinium Oxycoccos, Melica cærulea and the Eriophori. Rubus hirtus and affinis also form bushes upon the summit of the Beacon-hill, and Juncus squarrosus is abundant, while most of these plants are absent from the Malvern range. There is surely no want of water here, and Lastræa dilatata grows most magnificently in the damp ravines, with a bilobated variety of Grammitis Ceterach, Athyrium Filix-femina, and other ferns. I could easily mention several other favourable boggy localities near Kidderminster and Stourport, where various Carices and rare plants grow. But I have no wish to repress the energies of any enquirer, and only think it right to hint to young botanists, that due enquiry should be first made before it is too confidently set down that ferns and water are entirely absent from any ranges of hills, though at the time perhaps both may be within a stone's throw of the observer, had his local knowledge enabled him to reach them.—*Edwin Lees; Powick, Worcestershire, April* 4, 1844.

475. *Note on some localities in Mr. W. Gardiner's List,* (Phytol. 915). In the last number of 'The Phytologist' Mr. Gardiner of Dundee, a very zealous and enthusiastic botanist, gives some localities for rare Scotch plants which he collected in 1843. Among these he notices what he calls *new* stations for Lychnis viscaria and Carex rariflora. The localities however have been known for some time. I gathered the former in Craighall woods in August, 1829, and gave specimens to Dr. Graham and other botanists in Edinburgh. In another part of the same woods, I picked Convallaria verticillata and Neottia Nidus-avis. Carex rariflora was seen by Dr. Greville, Mr. Brand and myself, in a bog above Caness, in August, 1837. — Along the sides of the stream running into Caness, we gathered at the same time profusion of Phleum alpinum, Alopecurus alpinus and Carex aquatilis. I think the station was noticed in Dr. Greville's report of the excursion, read before the Botanical Society of Edinburgh; at all events, specimens were distributed from this locality.

I have no doubt however that Mr. Gardiner gathered the plants in these localities, without any knowledge of what had been done by others, and he deserves credit for the careful manner in which he has examined our alpine Flora. The other phanerogamous plants mentioned in Mr. G.'s list were picked in stations well known to all those who have botanized in the rich districts of Clova and Glen Isla, more especially to such as have accompanied Prof. Graham in his delightful excursions. A notice of most of them will be seen in the reports published by Dr. Graham in the 'Edinburgh Philosophical Journal.' I am glad to see that Mr. Gardiner found Alopecurus alpinus in profusion in the old station near Loch Dharval.—*J. H. Balfour; Glasgow, April* 9, 1844.

476. *Corrections of some errors in Mr. Gardiner's List of Plants.* My friend Professor Balfour has pointed out to me my mistake in supposing the stations for Lychnis viscaria and Carex rariflora (Phytol. 915-16) to be *new*, and I therefore gladly embrace the earliest opportunity of correcting it. I was perfectly unaware of these stations being previously known, and shall always be exceedingly thankful for any such corrections. For *Caulochen*, passim, read *Canlochen.* P. 917, line 6, for Didymodon inclinatus *Sm.* read *Sw.*; line 13, for *Carlowrie*, read *Carlowie.* The specimen supposed to be Cetraria juniperina has turned out to be only a young state of Parmelia caperata. *Wm. Gardiner; Dundee, April*, 1844.

477. *The Sidlaw-hills.* In an excursion to the Sidlaw-hills the other day, I had the pleasure of gathering Buxbaumia aphylla for about the tenth time; also Grimmia Doniana, Diphyscium foliosum, Zygodon Mougeotia, Jungermannia cordifolia, Stereocaulon paschale, and various other good things. Empetrum nigrum was in flower. *Id.*

478. *Remarks on the London List of British Plants.* In the new London Catalogue of British Plants, we have what has been long wanted, a list arranged according to the natural system, and gratitude is due from all botanists to the gentlemen who have been instrumental in publishing it. But how is it, that after having the nomenclature of our native plants completely revolutionized by the Edinburgh Society's list, which was to make our names agree with the continental ones, and set all errors to rights,—how is it, I ask, that we now have so curious a compromise between the new and the old nomenclatures? For while (to students of Smith and Hooker) Equisetum fluviatile appears under the name of E. Telmateia, Carex cæspitosa under that of Goodenovii, and Orobus sylvaticus of Vicia Orobus; Arrhenatherum avenaceum, on the other hand, returns to Avena elatior; the genus

Arundo is restored *vice* Calamagrostis and Phragmites; Alsine and Mœhringia degenerate into Arenaria; and sundry species of Erucastrum, Brassica and Diplotaxis revert to venerable Sinapis. These are only two or three instances taken at random to illustrate the "restoration." In the next place it appears that after all the wise ones were wrong in making species of Erythræa latifolia, pulchella and littoralis; of Carex irrigua; of Cochlearia anglica, danica and grœnlandica; of Senecio aquaticus, Habenaria chlorantha, sundry Atriplices, and a host of other plants, exalted only to be abased: for all these appear in the London Catalogue as varieties. Surely Carex Œderi is a good species! Surely Prunus insititia and domestica are something more than varieties of P. spinosa! And wherein have failed Stachys ambigua, Juncus conglomeratus and effusus, Avena alpina and planiculmis, that they should have no claim to numbers? Their claim to specific distinction seems to have been transferred to Fedia eriocarpa, Ranunculus circinatus &c., and Ajuga alpina is gone altogether. Would it not have been an improvement if a few synonymes had been introduced? Is Carex glauca of the list what we have latterly called C. recurva? Is Glyceria loliacea the plant which has at different times borne the generic names of Triticum and Sclerochloa? Without a good library we shall have to use plenty of guess-work in checking off our possessions. In the next place I am anxious to know how long a residence in this country is necessary before a plant becomes "sufficiently naturalized"? Mimulus luteus, Eranthis hiemalis, Lilium Martagon &c. are admitted, while Oxalis stricta, Erica carnea, Linaria purpurea &c. are excluded. The distinction between the two species of Impatiens is nicely discriminated; Noli-me-tangere is held to be truly wild because included in three Floras, fulva is introduced because not found in one of the twenty. Moreover, if the doubtfully native plants are to be marked at all, why not have made the list of them *perfect*, instead of leaving it incomplete, as avowed at p. 15? The result is, that we are very little wiser than before, as it is impossible to know which of the remainder "ought to have been" marked by the compilers. We are told that Viola odorata, Cheiranthus Cheiri, Crocus nudiflorus and the Vincas are not wild, but are professedly left in the dark as to Sisymbrium Irio, Chelidonium majus, and other introduced species. And when plants have been found only once or twice, or the *known* habitat is destroyed, is that a reason why they should afterwards be excluded from our lists, as is done in the London Catalogue with Eriophorum alpinum, Carex Davalliana, Potentilla alba, Bromus arvensis, &c.? On the same principle surely Convallaria bifolia, Cypripedium Calceolus, Cyclamen hederifolium, &c. should have been expelled to the cover. If such a plan is persevered in, we shall never know what to consider as our really native though very rare plants.—*Joseph Sidebotham; Manchester*, *April* 19, 1844.

[We gladly give insertion to the above remarks of Mr. Sidebotham, not because they are strictures on the extensive changes in nomenclature introduced into the Catalogue of the London Botanical Society, but because they refer to a subject of vital importance to the science of Botany. Every botanist must see how greatly to be desired is a uniform nomenclature; and to this desirable end should the efforts of all cultivators of the science be strenuously and unanimously directed. But this object can never be attained so long as those who ought to be considered authorities follow each their own path. Some of the changes complained of by Mr. Sidebotham, did not, however, originate with the London Botanical Society; their adoption of some of these changes we entirely approve of, nor can we help wishing that in some things they had gone a little further. For instance, the substitution of Equisetum Telmateia for fluviatile was proposed by Mr. Newman in our own pages (Phytol. 721), and this change has been adopted by the compilers of the London Catalogue; but why did they not restore the rejected name fluviatile to what we consider its legitimate position, as the appellation of the species still standing in the list as E. limosum? Carex glauca again is merely a restoration of a prior name to the plant named recurva by Hudson, and is adopted from Mr. Babington's Manual. Restorations of this nature, where the right of priority can be determined and is adhered to, we can never quarrel with. The compilers of the Edinburgh Catalogue thought it necessary to explain certain changes introduced into their list; perhaps the compilers of the London Catalogue may think it right to adopt the same course: if so, we shall be happy to admit their explanations into our pages. We shall also be glad to receive communications from our correspondents on the subject of nomenclature. By the way, we may take this opportunity of observing that we are convinced there is still room for a catalogue of British plants, with all their synonymes from the time of Linnæus, on the plan of Steudel's excellent 'Nomenclator,' which indeed should form the basis of the new British catalogue: this, if properly executed, would be a boon to our working botanists.—*Ed.*]

479. *Note on Primula elatior*. On the 17th instant I accompanied Mr. Borrer to Great Bardfield, Essex, to gather the true Primula elatior, where it was found by Mr. Henry Doubleday, (Phytol. 204).—On our way from the railway-station, Mr. Borrer fortunately espied it in a wet hilly pasture on the left of the road from Bishop's Stortford to Takeley, between the two-mile-stone and Thremhale Priory. We alighted of course, and entering the field, we observed it in greater abundance than in the meadow near the bridge over the Pant at Great Bardfield, although not quite so luxuriant. This plant has been frequently overlooked or confounded with Primula vulgaris, β. (*Smith*), Mr. Babington's β. *umbellata*, which is beautifully figured in Hooker's continuation of Curtis's 'Flora Londinensis' under the name of Primula elatior. Sir J. E. Smith was evidently acquainted with both,

and has well distinguished them; the accurate figure in 'English Botany' of Primula elatior, was communicated by the Rev. Mr. Hemsted, from whence does not appear. Mr. Hewett C. Watson (Phytol. 232) is decidedly right in saying that the Bardfield plant is the species intended to be figured in 'English Botany' (513), and is identical with Swiss and German specimens; I have a plant growing, and now in full flower, which was received from Belgium, exactly corresponding. It is probable that Ray did not distinguish the two plants, and that his "in sylvis & ad sepes non admodum infrequens" belongs to P. vulgaris, β., and "interdum & in pascua descendit" to P. elatior. His synonyme "Paralysis altera odorata flore pallido polyanthos," — "The Primrose Cowslip," Parkinson's Paradise, 244, I think belongs to P. elatior. I suppose both are called Oxlips in most counties: in Essex I know they are indiscriminately cowslips, the Primula veris being invariably pagils.—*Edward Forster; Woodford, April* 23, 1844.

480. *Note on the Bardfield Oxlip.* Thinking it might interest you to see a few of the oxlips which I have raised from seed collected at Bardfield in 1842, I send some in a box. I am quite convinced it is a really distinct species, as out of at least five hundred that have flowered, there is no variation from the old plants, nothing like a primrose or cowslip amongst them. They all droop.—*Henry Doubleday; Epping, April* 25, 1844.

[True indeed to their parental type are the beautiful descendants of the Bardfield oxlip which we have just received from our kind correspondent Mr. H. Doubleday. We have long felt convinced that the Bardfield plants belong to a perfectly distinct species — the Primula elatior of Jacquin; and now, had a doubt remained, it must have been dispelled by the specimens just received, for which we tender our best thanks to Mr. Doubleday. It is not a little strange that this plant should be confined, as it apparently is, to a few localities in Essex.—*Ed.*]

481. *Note on Cerastium semidecandrum and tetrandrum.* Enclosed are some specimens of Cerastium semidecandrum and tetrandrum. They grow together plentifully on the drier parts of our denes, and equally abundantly. The tetrandrous plants may be readily distinguished at a passing glance among the patches in which they grow, by a more robust appearance and larger flowers; but as to the specific characters given in 'British Flora,' 3rd edition, I have not access to a later), I think you will find in C. semidecandrum the calyx more taper-pointed, the petals not more deeply cloven, but the calyx margins perhaps more membranaceous than in the tetrandrous plant. — *J. P. Priest; Great Yarmouth, April* 11, 1844.

482. *On the Ascent and Circulation of the Sap in Plants.* At a recent meeting of the Royal Society were read, "Some further Obser-

vations and Experiments illustrative of the Cause of the Ascent and continued Motion of the Sap,' in continuation of a paper presented November 1842, by G. Rainey, Esq. — The author here gives an account of some experiments which he has lately made, tending, in his opinion, to corroborate the opinions he advanced in his former paper; namely, that the ascending sap is situate in the intercellular and intervascular spaces of the plant, and that its passage into the cells is effected by the action of endosmose, which the intervening membranes whether living, or deprived of vitality, exert upon that fluid. He found that portions of many plants, such as Anthriscus vulgaris and the Lapsana communis, absorb a much larger quantity of fluid when they are immersed in pure water, than when similarly immersed in a solution of gum-arabic: and that, in the latter case, the remaining portion of the solution is of the same specific gravity as before any part has been absorbed by the plant. By a similar process the author conceives the fluid which is derived from the earth, and has passed into the intercellular spaces of the cotyledons, are imbibed by its cells by endosmose; while at the same time a fluid containing sugar is passing, by exosmose, out of these cells into the intercellular and intervascular tissue, and thence into the corresponding tissue of the peduncle and young stem; it there meets with, and is diluted by the water ascending in the same tissue from the roots, and the mixture is afterwards distributed over every part of the plant."—*Athenæum*, *April* 10, 1844.

ART. CCXVII.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

April 12, 1844. — John Reynolds, Esq., Treasurer, in the chair. Various donations were announced, including a very large collection of East Indian plants, presented by the Royal Horticultural Society of Cornwall. Mr. D. Moore, of the Dublin Botanic garden, presented numerous specimens of Carex paradoxa (*Willd.*), collected in Ireland. Mr. W. L. Notcutt presented many duplicates of Statice rariflora (*Dreger*), collected in Hants. Various other specimens were presented for the Society's herbarium, in illustration of the varieties recorded in the 'London Catalogue of British Plants.'

Read, 'A Synoptical View of the British Fruticose Rubi, arranged in groups, with explanatory remarks (Part 2)': by E. Lees, Esq., F.L.S. The paper was accompanied by drawings and specimens.—*G. E. D.*